EPA's comments Part 1 - Chuitna Coal SEIS Draft Functional Assessment Methodology (UNCLASSIFIED)

Heer, Marcia L POA to: USFWS, Phil Brna, ADNR (ADF&G), Kate Harper , jeanette.alas@alaska.gov, Matthew 09/10/2012 01:19 PM

1 attachment

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Classification: UNCLASSIFIED
Caveats: NONE

FYI

-----Original Message-----
From: Matthew LaCroix [mailto:LaCroix.Matthew@epamail.epa.gov]
Sent: Tuesday, September 04, 2012 6:45 PM
To: Heer, Marcia L POA
Subject: Re: 30 day review period for Draft Functional Assessment Methodology - Chuitna Coal SEIS (UNCLASSIFIED)

Marcia,

Thank you for the opportunity to provide comments on the Draft Functional Assessment Methodology proposed for use in the Chuitna Coal Project SEIS. Our comments submitted today will be brief and follow the format of, and reference specific sections of the methodology document. We look forward to participation in the upcoming meeting referenced below to discuss the methodology.

To preface our more specific comments, we appreciate the work that HDR Alaska, Inc. has done to try and address agency concerns.

3.1 Selected Approach: In general, we support the proposed assessment approach. We would characterize it simply as the functional attribution of mapped wetland polygons. The proposed approach is to use site-specific data when it is available and literature-based characterizations when it is not. Given the scale of the project, this work can be considered as a watershed-level functional assessment. It bears much in common with the recent watershed-level functional assessment work being conducted in the Matanuska-Susitna Borough (MSB) and the similar work being conducted nationally by the U.S. Fish and Wildlife Service (NWI Plus) as described by Tiner. This was the approach that the EPA strongly supported in earlier agency discussions.

The functional attributions by both the MSB and NWI Plus rely more heavily on landscape position and wetland class than this proposed methodology. In certain instances, greater use of the landscape position and/or class would improve this effort. This will be discussed in the context of specific functions, but as an example, section 2.0 describes how sweetgale and patterned fens comprise a total of 34 percent of the mapped wetland area. As fens by definition receive groundwater discharge, the mapped fens could be attributed as performing the groundwater discharge function. Slope wetlands also typically receive groundwater discharge. At a minimum, the wetland

mapping is available to use for validation of the attribution of this function using the groundwater model.

3.2.3 Functions Not Assessed: This section discusses the naturally high levels of iron and manganese found in mine site groundwater. It indicates that attributing wetlands as performing the immobilization of metals would be complicated. We suggest that the appropriateness of attributing this function could be evaluated by comparing the levels of iron and manganese in the groundwater to that in the streams and wetlands. In particular, if surface or pore water within wetlands known to receive groundwater discharge (e.g., fens) or stream baseflow has lower levels of these metals, some immobilization is likely occurring within the fens and riparian wetlands. If this is the case, the indicators for attribution of the sediment and toxicant retention function would potentially have to include groundwater discharge and riparian wetlands, which is currently not the case.

This section also states that seven potentially rare plant species were found during vegetation and wetland studies. None of these species was found in a unique habitat type that was not widespread throughout the study area. From our perspective, this may mean one of two things. Either the habitat classification was not sensitive enough to detect the specific habitat type(s) used by the plant species, or the support of rare plant species should be considered as a ubiquitous function. Alternatively, these plant species are not as rare as currently believed, but their identification in the study area is not sufficient to support this conclusion.

3.2.6 Available Information: This section merely lists the available information. It does not discuss how it was used. Presumably that information is located in sections specific to the various functions. From our reading of the document, however, it is not clear how the best professional judgment assessment of functions performed in the field is proposed to be used. The 2008 functional assessment discussed using this data for validation of the GIS functional attribution. In addition, we are unclear on how the 29 habitat types assessed by ABR relate to the mapped wetland types. It is also not clear which of the 29 habitat types, if any, includes the beaver ponds mapped by OASIS. Lastly, section 4.5 indicates that stream stage data is available. We suggest that steam discharge is critical to understanding the functions of the wetlands and streams within the mine area, at a minimum.

4.2 Wildlife Species Richness: We are curious about why many of the individual habitat types listed in Table 4.4 provide habitat for different numbers of species depending on their location in the mine area, project infrastructure, or Ladd Landing. Does a lowland bog (for example) contain different vegetation in the mine area versus Ladd Landing? More discussion of how these numbers were derived would be helpful.

We understand that this function is measuring biodiversity rather than habitat quality, but since data on those habitat types that provide 'essential' habitat is available, we think it should be used. We suggest that the provision of 'essential' habitat to one or more wildlife species be mapped as its own function.

4.5 Floodflow Moderation: We understand the desire to assess and attribute this function. Indeed, we are among those agencies that vigorously stresses the ecological significance of floodplain connectivity. In this case, however, we are not certain that attributing this function based on the reception of overbank flow is the most appropriate method. Given that much of the aquatic resources, particularly in the mine area, are headwater wetlands around first-order streams, the hydrograph may be relatively flat. If overbank flows are rare or minimal, then this function will not capture the mechanism by

which these wetlands moderate 'floodflows.' An examination of the hydrograph will indicate whether the proposed methodology is on the right track. The lack of distinct flood peaks does not mean the function is not being performed, rather that storage in the wetlands occurs prior to the stream receiving it and not vice versa. This would perhaps more correctly be described as streamflow maintenance. Water moves laterally into streambanks in addition to overtopping them, and where streams are underfit to their valleys with abutting wetlands, parallel flow through the wetlands can be substantial and preclude overtopping.

It may be true that using the approaches described in the document would correctly identify those wetlands most important for this function, even though the intent is to measure a different mechanism (i.e., overbank flow).

We do have a few more comments. Hopefully we can submit them tomorrow even though that is past your deadline. We apologize for our late submittal.

Thank you again for the opportunity to provide comments.

Matthew LaCroix
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222 W. 7th Ave. #19 (Room 537)
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(907) 271-1480

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From: "Heer, Marcia L POA" <Marcia.L.Heer@usace.army.mil>
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Date: 08/02/2012 04:04 PM
Subject: 30 day review period for Draft Functional Assessment Methodology - Chuitna Coal SEIS (UNCLASSIFIED)

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Classification: UNCLASSIFIED
Caveats: NONE

Hello,

Attached is the draft Functional Assessment Methodology as proposed by HDR and with input from the functional assessment subgroup that met back in February. Please provide me with any comments by September 4, 2012. We will also be sending out an invite soon for a meeting in early September to discuss this draft functional assessment.

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EPA's comments Part 2 Draft Functional Assessment Methodology - Chuitna Coal SEIS (UNCLASSIFIED)

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From: Matthew LaCroix [mailto:LaCroix.Matthew@epamail.epa.gov]
Sent: Wednesday, September 05, 2012 3:52 PM
To: Heer, Marcia L POA
Subject: Re: 30 day review period for Draft Functional Assessment Methodology - Chuitna Coal SEIS (UNCLASSIFIED)

Marcia,

Good afternoon. Here are some additional comments regarding the Draft Wetland Functional Assessment methodology. We will begin where we left off in yesterday's comments.

4.5 Floodflow Moderation: As we said yesterday, trying to determine the extent of the floodplains associated with the streams within the mapped area is a laudable goal. Attributing these floodplains as performing a floodflow moderation function is a natural approach to take. We believe this to be true even if the streams rarely overtop their banks, as the wetlands in the 'floodplain' landscape position undoubtedly store and delay streamflow. Determining the lateral extent of the floodplains for these streams is the difficult portion off the attribution.

The document indicates that the slope class of wetlands abutting the streams will be used for the "first approximation of the floodflow moderation layer." It then states that this layer may be reduced if it identifies areas that "could not conceivably be inundated by overbank flooding." The document does not state how this determination will be made, but identifies several methods that could be used to identify floodplains. Our preference would be for the floodprone areas of the streams to be used as surrogates for the floodplains and attributed as performing this function. This is a common approach in ungauged streams with an unknown stage-discharge relationship. Attributing the floodprone areas without using the slope class layer would likely simplify the process. Slope classes other than low-gradient may not reduce flow velocity as much, but they often exhibit greater microtopography and areas for storage of floodflow. We do question whether the available elevation data is precise enough for this task (the five-foot contours being the more precise). The twenty-foot resolution DEM used to generate the slope classes seems quite coarse to us.

4.6 Surface and Subsurface Water Storage: This function is defined to include

the "delay" of water, so the discussion of wetlands that lack storage capacity due to being already "full" is perhaps a bit unnecessary. We agree that the capacity of a wetland to store water will vary seasonally and based on antecedent conditions. We do not, however, agree that the capacity of a "full" wetland to slow water would be very low. The capacity of inundated floodplains to slow water is considered to be high. Even flow-though wetlands would function similarly to floodplains. By extension, the low-gradient and depressional wetlands proposed to be attributed should also perform this function at least moderately. We do not wish to belabor this point, but an inch of surface inundation (well within the microtopography and vegetation of the flattest wetlands) extended across 36 acres represents over a million gallons of storage capacity. The document itself says as much, so our comments are also perhaps unnecessary.

4.8 Groundwater Discharge and Groundwater Recharge: We support the use of the groundwater elevation model developed by OASIS. As validation for the model results, and for those areas that have not been modeled, we suggest using geomorphic correlations. The landscape-level wetland functional assessment work in the MSB attributes contribution to and transmission of groundwater, so similar indicators could be used. Although Tiner (2003) does not attribute groundwater functions explicitly, his streamflow maintenance function includes groundwater discharge, so his correlations could be used. In particular, headwater wetlands represent areas of groundwater outflow and may in fact be the source of streams. The attribution of the stream headwaters within the mine area will be a critical validation test for the groundwater elevation model. And as mentioned in yesterday's comments, true fens are areas of groundwater discharge. In the case of headwaters and fens, the geomorphic correlations to groundwater discharge are very strong.

4.10 Sediment and Toxicant Retention; 4.11 Nutrient Retention: The attribution of both of these functions is proposed to be based on indicators of effectiveness and opportunity. We do not support this approach, as it distorts the functional capacity of the wetlands. Under this approach, a wetland receiving discharges of sediment, toxics, or nutrients would not be attributed as performing the function if it did not have indicators for effectiveness. Conversely, a wetland with high inherent capacity to retain these substances would not be attributed without indicators of opportunity. We believe that the functional assessment should characterize the physical, chemical, and biological processes of the wetlands. The focus of the assessment, and the attribution of the functions should be based on our understanding of a particular wetland's capacity to support a process. The attribution of the other functions is explicitly stated as not based on whether humans are benefitting from those functions. It does not matter whether humans are using the groundwater that is recharged or discharged or harvesting or viewing the Rusty blackbird. Nor does it matter whether the number of returning coho salmon is large or small, or the size of this year's snowpack. Likewise, it should not matter whether anthropomorphic sources of sediments or nutrients exist when these functions are attributed.

The deposition and retention of sediment is a natural process. The mountains are washed to the ocean with every raindrop. Human overloading of natural processes is not the lens through which we view these processes. Some wetlands exist in areas where sediment is deposited. Within the limits of these processes, sediment will be deposited here regardless of the source. Similarly, wetlands have an inherent capacity to remove nitrogen and phosphorus. These nutrients exist in nature and the processes of their transformation and removal are not dependent on anthropogenic sources. As is the case with the other functions (e.g., supporting wildlife), not all wetlands have equal capacity to store sediment or to transform nutrients. Wetlands with indicators of high inherent capacity should be attributed as

capable of performing the function. As an aside, the high baseline water quality in the project area is more likely an indicator that the wetlands are successfully transforming nitrogen rather than an indication that opportunity is lacking.

For both of these functions, floodplains have been shown to have high functional capacity. In addition, peatlands have been shown to have a great capacity for phosphorus removal. We recommend these geomorphic correlations be used in attribution.

Thank you again for the opportunity to provide comments on this proposed methodology. Please contact me with any questions you may have regarding these comments.

Sincerely,

Matthew LaCroix
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